

REMARKS

This is an amendment under 37 CFR §1.116. The purpose of this amendment is to put the application in condition for allowance or, alternately, in better form for appeal. The amendments and specific arguments herein, to the extent they were not presented earlier, are now presented because they are necessitated by the arguments made by the Examiner in the last office action.

Since this response is being filed within two months of the mailing date of the final rejection, the courtesy of an advisory action is respectfully requested. Claims 1-3, 21-22, and 24-37 are in this application. Claims 1, 26, and 33 have been amended. Claims 4-20 and 23 have been cancelled.

On August 9, 2002, applicant filed three sheets of formal drawings that included FIGs. 1, 2, 3, and 4 which, in turn, were received by the U.S. Patent Office on August 14, 2002. As of September 29, 2003, the Patent Application Information Retrieval (PAIR) system did not reflect that the formal drawings had been received by the Office.

As a result, on September 29, 2003, applicant re-submitted the formal drawings that were filed on August 9, 2002 to the U.S. Patent Office as substitute drawings in accordance with 37 CFR §1.21(b)(3) to replace the informal drawings that were filed with the application. The substitute drawings included FIGs. 1, 2, 3, and 4.

In the amendment filed on May 21, 2003, applicant proposed drawing changes to FIG. 1, which the Examiner approved in the present application. As a result, one replacement drawing sheet of FIG. 1 is attached to the end of this paper as an Appendix. Please use the attached replacement drawing sheet of FIG. 1 to replace the substitute drawing sheet of FIG. 1 that was re-submitted to the Office on September 29, 2003. The attached replacement drawing sheet includes no new matter.

RESPONSE UNDER 37 CFR §1.116 (TO
OFFICE ACTION DATED AUGUST 21, 2003),
EXPEDITED PROCEDURE REQUESTED

Atty. Docket No. 100-16300
(P05089)

The Examiner rejected claims 1-3, 22, 24, 25, 28-30, and 32 under 35 U.S.C. §103(a) as being unpatentable over Wark (U.S. patent 6,399,416) in view of Wolf et al. (*Silicon Processing for the VLSI Era*, Vol. 2, Lattice Press, 2000, pages 826-829). The Examiner also objected to claim 23, but indicated that claim 23 would be allowable if amended to be in independent form and include all of the limitations of the base claim and any intervening claims.

With respect to claim 1, this claim has been amended to include the limitations of objected-to claim 23. As a result, independent claim 1 and dependent claims 2-3, 22, and 24 are patentable over Wark in view of Wolf.

With respect to independent claim 25, this claim recites, in part,

“a passivation layer formed on the interconnect, the passivation layer having a top surface, a center region of the top surface, and a peripheral region of the top surface that surrounds the center region;

“a plurality of first bonding pads formed on the passivation layer only in the peripheral region, the first bonding pads being electrically connected to the interconnect; [and]

“a plurality of second bonding pads formed on the passivation layer only in the center region, the second bonding pads being electrically connected to the interconnect.” [Brackets added.]

In rejecting the claims, the Examiner argued that the plurality of first bonding pads are formed on the passivation layer only in the peripheral region and the plurality of second bonding pads are formed on the passivation layer only in the center region. Applicant respectfully does not understand how the Examiner is reading the limitations of the claims on the Wark reference.

In addition, in the amendment filed on May 21, 2003, applicant argued that die 26 (read to be the first die of claim 25) shown in the annotated copy of FIG. 2 of Wark has bond pads only in the peripheral region of the top surface of die 26. From what applicant can determine, the Examiner did not respond to applicant's May 21st

argument. Applicant notes that applicant can not respond further without knowing why the Examiner believes that claim 25 remains unpatentable.

In addition to the above, applicant further notes that it does not appear to be possible for bond pads to be formed in a center region of the top surface of die 26 shown in FIG. 1 of Wark because die 32 shown in FIG. 1 of Wark would cover the bond pads. Thus, from what applicant can determine, claim 25 is patentable over Wark in view of Wolf. In addition, since claims 28-30 depend from claim 25, claims 28-30 are patentable over Wark in view of Wolf for the same reason as claim 25.

With respect to independent claim 32, this claim recites, in part,

“a package including:

“a substrate having a top surface and a bottom surface, the substrate being attached to the first die;

“a plurality of fourth bonding pads formed on the top surface of the substrate;

“internal routing electrically connected to the fourth bonding pads; [and]

“a plurality of circuit board connectors formed on the bottom surface of the substrate, the circuit board connectors being connected to the internal routing.” [Brackets added.]

In rejecting the claims in the Office Action mailed February 27, 2003, the Examiner, citing column 4, lines 46-54 and FIG. 3b of Wark, pointed to die 12 as constituting the package. The Examiner argued that package 12 has a plurality of fourth bonding pads, a plurality of circuit board connectors, and internal routing.

In the amendment filed on May 21, 2003, applicant noted that Wark teaches that the back side of die 12 and the back side of die 26 are attached with epoxy 28 (see also Wark's FIG. 1). Thus, applicant noted that it is not possible for Wark to have fourth bonding pads on the top surface of die 12 and circuit board connectors on the back surface of die 12 because one of the two sides would be covered with epoxy and bonded to the bottom side of die 26.

In presently rejecting the claims, the Examiner repeated the rejection from the February 27, 2003 office action but, from what applicant can determine, did not respond to the arguments presented by applicant in the May 21, 2003 amendment. Applicant notes that applicant can not respond further without knowing why the Examiner believes that claim 32 remains unpatentable.

In rejecting claim 24, the Examiner pointed to bond pads 36 that are formed on the top surface of printed circuit board 22 as shown in FIG. 3B of Wark as constituting the plurality of fourth bonding pads, and layer 38 of printed circuit board 22 as constituting the plurality of circuit board connectors. It is unclear to applicant, however, how the Examiner is reading a layer of a printed circuit board to be the plurality of circuit board connectors. As a result, from what applicant can determine, claim 32 is patentable over Wark in view of Wolf.

Since the Examiner does not appear to have addressed applicant's arguments with respect to claims 25 and 32, applicant respectfully requests that the Examiner withdraw the final rejection and provide applicant with the Examiner's reasoning for believing that claims 25 and 32 remain unpatentable.

In addition to claim 23, the Examiner also objected to claims 26, 31, and 33-37, but indicated that these claims would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims. Claims 26, 31, and 33 have been amended to be in independent form, and are believed to include all of the limitations of the base claim and any intervening claims. Claims 34-37 have not been amended as these claims depend from claim 33.

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Thus, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service, postage prepaid, in an envelope, addressed to Mail Stop NE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on 10-13-03.

Dated: October 13, 2003 By: Salvador R. King

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OFFICE ACTION DATED AUGUST 21, 2003),
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APPENDIX

One replacement drawing sheet of FIG. 1.

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